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COMMUTING AND THE FERTILITY OF CONSTRUCTION WORKERS IN CHIANG MAI CITY

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(an edited version)

Abstract

This study examines the demographic characteristics, mobility patterns, and fertility behavior of rural construction workers in Chiang Mai city. Data for the analysis were based on the field study of 23 sites of the large-scale construction industries in Chiang Mai city during the month of March 1981. At each site, all project managers, 1,865 male and female workers, and 132 currently married female workers aged 15-44, were interviewed.

It was found that commuting is a mechanism by which the construction workers cope with the fluctuations in size and composition of labor in the industry as well as take advantage of the social and economic opportunities from both rural and urban places at the same time. Commuting has also allowed many rural married women to continue their construction work. However, unlike family agricultural work in which the wife's labor inputs can be flexible and adjusted so that she can also perform the role of mother while also being economically active, construction work creates incompatibility between motherhood and job-holding. With the availability of rural parental surrogates declining, participation in the urban labor force has a significant influence on fertility behavior. These female construction workers, though continuing to marry young, adopt family planning to delay having children and to space them to allow themselves to continue to work as well as to limit family size. It also appeared they have fewer children than the average Chiang Mai women in general.

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COMMUTING AND THE FERTILITY OF CONSTRUCTION WORKERS IN CHIANG MAI CITY

Chiang Mai, the regional center of North Thailand, about 600 kilometers north of Bangkok, is alive with people moving. Each day, thousands of rural northern Thais come to the city for employment, trade, administrative business, education, health care, shopping, entertainment, and for a variety of other reasons. Village mini-bus owners run charter businesses, contracting with groups of villagers on both regular and non-regular bases. In addition, scheduled inter-district buses run between Chiang Mai and its outlying districts, providing another type of cheap transportation for rural commuters. Equally important are privately owned motorcycles and bicycles. Every morning, from any route in any direction connecting Chiang Mai with surrounding villages, one can witness a continual stream of mini-buses, buses, and motorcycles flowing into the city from between 6 and 9 a.m. This flow thins out and is replaced by oscillating movements during the day. Then, a reverse flow begins around 3.30 p.m. when villagers return to their homes at the end of the day, this flow tapering off around 7 p.m. Witnessing such mobility one could not escape the conclusion that movement is an essential part of the peasant life in northern Thailand.

Such heavy flows of rural-urban commuting in Chiang Mai attest to the relationship between Chiang Mai and its rural hinterlands, facilitated by the development of transportation networks. The rapid growth of Chiang Mai during the past twenty years has created job opportunities in the city for many non-skilled and little-educated villagers, especially in the building industries. Various road expansion projects as well as building projects have resulted in a continual demand for numerous construction workers. Most construction workers in the city were from rural areas around Chiang Mai, even though many of the construction companies and their contractors come from other parts of the country. Only a fraction of their skilled employees have followed their companies or contractors from elsewhere.

The development of transportation networks and the availability of cheap public transportation have made it possible for rural construction workers to participate in the urban labor force through short-term temporary movements, particularly commuting without having to move to live in the city. The commuting process, thus, takes villagers out of their rural environment for 7-10 hours and places them in an urban setting. Such exposure to an urban environment may not only have influences on the attitudes and values of the rural workers, but may also have a significant impact on their demographic behavior, particularly among the married women workers.

Urban construction work, unlike traditional agricultural work in which husband and wife and their family work together and in which their labor inputs can be flexible and be adjusted among themselves so that the wife can also perform the role of mother while also being economically active, creates incompatibility between motherhood and participation in construction jobs. With the availability of rural parental surrogates declining, married female commuters have to make a choice and this situation may have a significant influence on their fertility behavior.

This study is an exploratory effort aiming to examine the demographic characteristics, commuting patterns, and fertility behavior of rural construction workers in Chiang Mai city. It is based on the following propositions:

1. Incompatibility between construction work in the city and the role of mother puts a constraint on rural female commuters causing them to have to make a choice between being economically productive and raising children.

2. Exposure to the urban environment has influenced the values of rural commuters regarding modern conveniences, high educational achievement for their children, and small family size.

Concepts and Definitions

Previous interest in the relationship between population movement and fertility in Thailand has focused on longterm moves such as those captured in census data or in national surveys. In Chamratrithirong (1976), for example, data from the 1960 and 1970 censuses are used to analyze the relationship between fertility, nuptiality, and migration. Guided by Davis' Multiphasic Response Theory, the study contends that "nuptiality and migration operate as intervening variables, preceding and substituting for the change in marital fertility" (Chamratrithirong 1976, 4). Another study, by Chamratrithirong and Kanungsukkasam (1977), analyzes the fertility differentials among migrants in the slums of the Greater Bangkok Metropolitan Area, using data from the Study of Public Health Nursing Role and Effectiveness in Motivating Family Planning Usage. This study confirms that new migrants have lower fertility than both long-term movers and Bangkok-born individuals. Other related studies include Goldstein (1973), Tirasawat (1977), and Goldstein and Tirasawat (1977). The latter work analyzed the migration experience of movers to Bangkok and urban places in the provinces using data from the National Longitudinal Survey of Social, Economic, and Demographic Change in Thailand (Prachuabmoh et al. 1973). This study found that one demographic change among movers was a tendency towards lower cumulative fertility. The authors asserted "conditions associated either with the move itself or with the place of destination contribute to lower fertility than that of non-migrants."

However, other studies of population movement in Southeast Asia and other Third World countries have increasingly pointed towards the importance of short-term, cyclical, and non-permanent movements found in those societies. Singhanetra-Renard (1981a), for example, has shown that commuting is the predominant form of rural to urban movement in North Thailand.

Despite these findings, short-term moves, particularly commuting have conventionally been associated with industrial

societies. The industrialization and subsequent urbanization of much of Europe and North America in the last 150 years has created the phenomenon of large scale movement of people between places of residence and places of work. This movement, metaphorically referred to as the 'tide of daily ebb and low' was noted sixty years ago as a "new factor in demography" (Great Britain Census 1921, 190). Liepmann (1944, 7) later attributed such movement to the separation of residential quarters from industrial and business districts. Similarly, Vance (1960) noted much the same situation in the United States. Recent studies on population movement by Hugo (1975) and Singhanetra-Renard (1981b) have pointed out that transportation development has facilitated rural to urban commuting in Third World countries and that this phenomenon is important in the sustenance of the rural population. The impact of the journey to work of these people on socio-economic and demographic changes may be no less significant than that of migration, especially among the female labor force.

Studies on female labor force participation by Weller (1968), Jeffe and Azumi (1960) asserted that incompatibility between the roles of mother and work-force determine differential fertility behavior of working and non-working women. Such differentials also extend to participants in the rural (farm) work force and in the urban work force, between which the difference in availability of parental surrogates plays a role (Goldstein 1972, 420). Gendell et al. (1970) have found widespread relatively low fertility among labor force participants in large urban and in more modern sectors of the economy. However, the complexity of much Third World circulatory population movement makes it difficult to clearly distinguish between rural versus urban or agricultural versus non-agricultural segments of population. One sector of a village population, for example, while continuing to maintain its home base in the rural area, works in an urban environment by commuting to work in the city. It is likely that the separation of work and family roles would have the same impact on the rural work force in the city as it does on urban women work force.

In this study, all types of commuters, whether daily, periodic or seasonal movements, of the construction workers will be covered. This definition follows Singhanetra-Renard (1981a) in emphasizing the functionalrelationships of the movers to their home community rather than the conventional definition anchored to time and space. In other words, commuting in this study is defined as movements in which movers maintain membership in and an on-going relationship with their home community in the village, no matter how far they move or how long they have been away from home.

Sources of Data

Data for the analysis of this study were based on the field study of 23 sites of the large-scale non-private residential construction industries in Chiang Mai city (Muang district) during the month of March 1981. These construction sites represent one hundred percent of the sample of that period. These construction projects can be grouped into 6 types: residential (housing sub-divisions, apartments), educational, commercial, medical, governmental, and hotels. (Table 1)

At each site, 3 groups of respondents were interviewed:

a) Twenty-three project managers on the duration of the job, the stage of the project, the pay days, number of workers for each day during the past week, number of workers staying at the construction camp, and types of sub-contractors.

b) All 1865 workers from 23 sites on commuting patterns.

c) All 132 currently married women workers aged 15-44 years who commuted to work on detailed reproductive history, values and attitudes toward work and the role of mother, their aspirations for their family and children.

In addition to data from the field survey, the records of the building permits both inside and outside the municipal area of Chiang Mai city were also examined to study the nature and the extent of the physical growth of the city since 1970. These sources of data formed the basis of the following analysis.

Table 1

Type of Building Construction in Chiang Mai City

March 1981

Type of building	No of sites	Percent
Housing sub-divisions/apartments	6	26.1
Educational	5	21.7
Commercial	4	17.4
Medical service	4	17.4
Governmental	3	13.0
Hotel	1	4.3
Total	23	100.0

The nature of Building Industries in Chiang Mai

Chiang Mai city has been experiencing rapid physical growth. Both government and private sectors either have expanded their existing establishments or set up new branches in Chiang Mai. Rows of two or three storey concrete shop-houses have also replaced old wooden one storey shop-houses or houses along the main streets. Orchards and large house compounds in the city were also bought and consolidated by developers who turned them into housing sub-divisions, or first-class hotels. Records of the building permits given out for outside the municipal area but within the city boundary showed over a 90 percent increase between 1970 and 1979. (Table 2). Had government buildings been included in these records, the increase would have been over a hundred-fold. The survey of non-private residential construction sites in the city during the month of March 1981 showed 23 projects ranging from a 1 million-baht shop-house to a 240 million-baht fourteen-storey hospital building, with the

Table 2

Building Permits in Chiang Mai City*

Between 1970-1979

Type of Building	1970[1]				1971				1972[2]				1973[3]				19	
	a)	b)	Total	%	a)	b)	Total	%	a)	b)	Total	%	a)	b)	Total	%	a)	b)
Residential	n.a.	36	36	51.4	n.a.	148	148	78.7	n.a.	152	152	77.6	n.a.	165	165	84.6	n.a.	156
Commercial	n.a.	25	25	35.7	n.a.	26	26	13.8	n.a.	31	31	15.9	n.a.	18	18	9.2	n.a.	10
Industrial	n.a.	-	-	-	n.a.	-	-	-	n.a.	-	-	-	n.a.	3	3	1.5	n.a.	5
Service	n.a.	9	9	12.9	n.a.	9	9	4.8	n.a.	8	8	4.1	n.a.	6	6	3.1	n.a.	37
Transport	n.a.	-	-	-	n.a.	-	-	-	n.a.	2	2	1.0	n.a.	3	3	1.5	n.a.	-
Others	n.a.	-	-	-	n.a.	5	5	2.7	n.a.	2	2	1.0	n.a.	-	-	-	n.a.	3
Total	n.a.	70	70	100	n.a.	188	188	100	n.a.	195	195	100	n.a.	195	195	100	n.a.	211

a) Inside Municipal Area

b) Outside Municipal Area

1 Except between May 16 - June 15

2 Except between January 1 - 30 and September 16 - 30

3 Except between October 1 - 15

4 Except between November 13 - 30 and December 1 - 15

5 Except between May 17 - 31

6 Except between February 16 - 28

Source : Chiang Mai Municipal Office and Amphoe Muang Office

* Government buildings were not included in these records.

		1975[4]				1976[5]				1977[6]				1978				1979			
tal	%	a)	b)	Total	%	a)	b)	Total	%	a)	b)	Total	%	a)	b)	Total	%	a)	b)	Total	%
56	73.9	293	140	433	78.3	332	150	482	83.3	352	244	596	76.7	263	222	485	74.3	253	237	490	74.7
10	4.7	74	32	106	19.2	53	29	82	14.2	118	42	160	20.5	94	43	137	21.0	78	38	166	17.7
5	2.4	5	3	8	1.5	7	4	11	1.9	-	14	14	1.8	-	9	9	1.4	3	1	4	0.6
37	17.5	3	3	6	1.1	-	3	3	0.5	2	5	7	0.9	4	18	22	3.4	4	38	42	6.4
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	0.6
3	1.4	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
11	100	375	178	553	100	392	186	578	100	472	305	777	100	361	292	653	100	338	318	656	100

number of workers ranging from 20 to 300 a day depending on both the size of the project and the stage of the construction.

Housing developments form the largest construction projects. They consist of about a quarter of all the projects. The establishment of government regional offices, business, educational institutions and service industries has resulted in the transfer of white collar workers, government officials, businessmen and other professionals to Chiang Mai. These newcomers, witnessing the growth of Chiang Mai as well as liking its cool climate and the cultural attributes of the northern Thai people, have begun to invest in land in Chiang Mai, some for future retirement homes, many for profits. Cheap empty land, orchards, or rice fields on the outskirts of the city were the first popular sites in the 'sixties. The continued growth of Chiang Mai in the 'seventies as the administrative, tourist, business and educational center of the northern region has encouraged movement of more people into the city, both temporarily and permanently. The influx of people from other parts of the country together with the increase of the Chiang Mai population from natural increase, has created a need for new housing. Speculators have started sub-division housing projects in Chiang Mai. In 1978, there were as many as 26 projects within the city boundary with 8 other land sub-divisions (Supatra 1980). Large-scale housing construction has thus become the most numerous type of construction project in Chiang Mai. It forms 26.1 percent of the construction projects during the time of the survey. (Table 1).

Following the founding of Chiang Mai University in 1962, several other educational institutions have been established and have expanded their services and enrollments. Many new campus buildings have been built every year for the university, colleges, and vocational schools. In March 1981, educational building projects were the second largest group of the construction projects in the city, consisting of about 21.7 percent.

The increased Chiang Mai population, together with the influx of students and tourists, has helped to encourage trade and business.

Four shop-house building projects were being constructed at the time of the survey, ranging from an over one hundred shop-house complex to a three shop-house building. Of equal number were building projects for medical services. They consisted of a fourteen-storey hospital building, public health and neurological clinic buildings. The construction of government buildings involved the moving of offices out of the old city proper to the new sites close to where the new provincial government office complex is now located at the northern end of the city. With the promotion of Chiang Mai as the tourist center of North Thailand, large hotel buildings have also become a prominant feature of the Chiang Mai landscape. A 400-room hotel belonging to an international chain was being built at the time of the survey, adding to the over 10 big hotels in the city.

These types of building projects have become the major source of employment for a large number of rural laborers from villages around Chiang Mai. It was found that most construction firms were using a minimum of labor-saving machines. With the readily available cheap rural labor force even the contractors and sub-contractors prefer to employ local labor over machines or labor from elsewhere. Only a small number of highly skilled laborers are brought in to supervise the local laborers. In this way the contractors have been able to cut the cost of transportation and accommodation for its employees to a minimum. Besides, local laborers can be hired cheaper than those from Bangkok, and at usually less than the minimum wage except for a few skilled workers.

Many factors contribute to the low wage situation among construction workers in Chiang Mai, such as the ready availability of rural laborers which the contractors or foremen can call upon for any amount with only one or two days advance notice through their village workers. These workers would willingly contact their friends and relatives from their own or neighboring villages to come and work in Chiang Mai. Such an opportunity is always welcomed by surplus farm laborers who find limited non-farm job opportunities in the rural areas. In addition, many young farmers also take the opportunity to earn extra income during the slack season. With little or no

education and work experience requirements for the majority of their jobs, the contractors find no shortage of labor and the village workers have no bargaining power. The low wage (30 baht or 1.50 U.S. dollars) which the majority of the village construction workers receive is profitable to them only because they are able to commute to work or have access to free accommodations at the construction camp.

All but one of the companies have informal hiring system for workers and have no records whatsoever on their workers. Almost all of the workers are hired directly by the sub-contractors who also set their wage. All workers were daily wage workers and are paid twice a month either on the 1st and 16th, the 5th and 20th, or the 15th and 30th. Each worker is given a small card that they bring to work to have the manager sign every day they work. They will then be paid for the number of signatures on their cards. They hand in their cards in the morning when they report to work before 8 a.m. and receive them back in the evening at 6 p.m. at the end of the workday. The size and composition of the construction workers hired fluctuate according to the different stages of the project. Workers are told at the end of the day if their labors will or will not be needed the next day, or to find more workers for the next phase of the construction. If their work ends before a payday they are not paid before but have to come back to get their wages at the specified payday. Otherwise they can trade their work days with their friends, who advance them the money.

In general there are two group of village construction workers. The first group is village men who have acquired various skills in construction such as carpenters, painters, tilers, or village women such as tilers, iron workers, or concrete polishers. These people have taken up construction work as their primary occupation and some have risen to the position of foremen. The second group includes young villagers who are either surplus agricultural labor in their families or are from landless families. These individuals were

hired to excavate, haul dirt, move equipment, or other manual jobs. Though most of the people in the second group started to work on a part-time basis, a considerable number have taken up construction work as their full-time occupation and gradually have learned one of the skills of the first group. Although full-time construction work is more popular among males than females, the percentage of sex differences among the two groups is not as great. It was found that 44.2 percent of the male workers engage in construction as their primary job and 40.9 percent of the females did also (Table 3). However, it was clear that over half of them are part-time workers, (Table 4), taking up construction jobs to supplement their income from other types of primary occupations, particularly agriculture.

Table 3
Type of Labor by Sex

	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
Skilled	927	66.9	87	18.2	1,014	54.4
Non-Skilled	435	31.4	392	81.8	827	44.3
Foremen	24	1.7	-	-	24	1.3
Total	1,386	100.0	479	100.0	1,865	100.0

Mobility Pattern

Three-fourths of the construction workers in Chiang Mai city are residents of Chiang Mai. (Table 5). The next largest group of the workers, though accounting for only 10 percent, comes from the provinces of Lamphun, Lampang, Chiang Rai, Mae Hong Son and Phrae of the upper northern region of which Chiang Mai is the regional center. There are very few workers from outside the northern region

Table 4

Construction Occupation by Sex

	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
Temporary	774	55.8	283	59.1	1,057	56.7
Permanent	612	44.2	196	40.9	808	43.3
Total	1,386	100.0	479	100.0	1,865	100.0

Table 5

Place of Origin

of Construction Workers in Chiang Mai

	Number	Percent
Chiang Mai Province	1,402	75.2
Upper Northern Region	192	10.3
Central Region	143	7.7
Northeastern Region	74	3.9
Lower Northern Region	50	2.7
Southern Region	4	0.2
Total	1,865	100.0

as the rest of the country contributes only 15 percent of the workers in Chiang Mai, (Table 5) most of whom are skilled labors who follow their companies to different parts of the country where the companies have won contracts.

Among those from Chiang Mai, the majority are from rural areas with only 14 percent from within the city (Muang District). These rural workers come from every district of Chiang Mai, except the most remote districts of Mae Chaem, Omkoi, Phrao and Samoeng (Figure 1). As would be expected, three of the districts bordering the city (Hang Dong, Mae Rim, and San Sai) together share half of the construction work force in the city (Table 6). As all of the Chiang Mai districts have mini-bus and bus service connections with the city, it was convenient for most construction workers from these districts to commute to work.

It was found that over half (61.9 percent) (Table 7) of the workers live in their home village and commute to work every day. Only those from other parts of the country and from the most distant districts of Chiang Mai such as Fang, Mae Ai or Doi Tao, have to make housing arrangements in the city or in nearby districts. Although almost all construction companies provide modest 'housing' consisting of a room made from waste planks, plastic sheets, or old corrugated zinc, these places are usually for workers that the company or the contractors bring in from outside Chiang Mai. During the time of the survey there was only one company which provided about 350 spaces for almost all their workers who wished to stay at the construction camp. Thus it was found that workers who are unable to commute daily find a place to stay with their friends or relatives in Chiang Mai or in Lamphun. Only skilled laborers, who travel with the companies, can afford to pay rent or have their rents paid for them by the company while working in Chiang Mai.

There are two types of village construction work commuters: those who stay at their home village and journey to work daily, and those who stay at the construction camps or other housing arrangements and make regular visits home. Some of the people in the latter group spend the total length of 2-3 months of their work before they return home when the work is finished. However, they usually are visited by friends or relatives from home (many

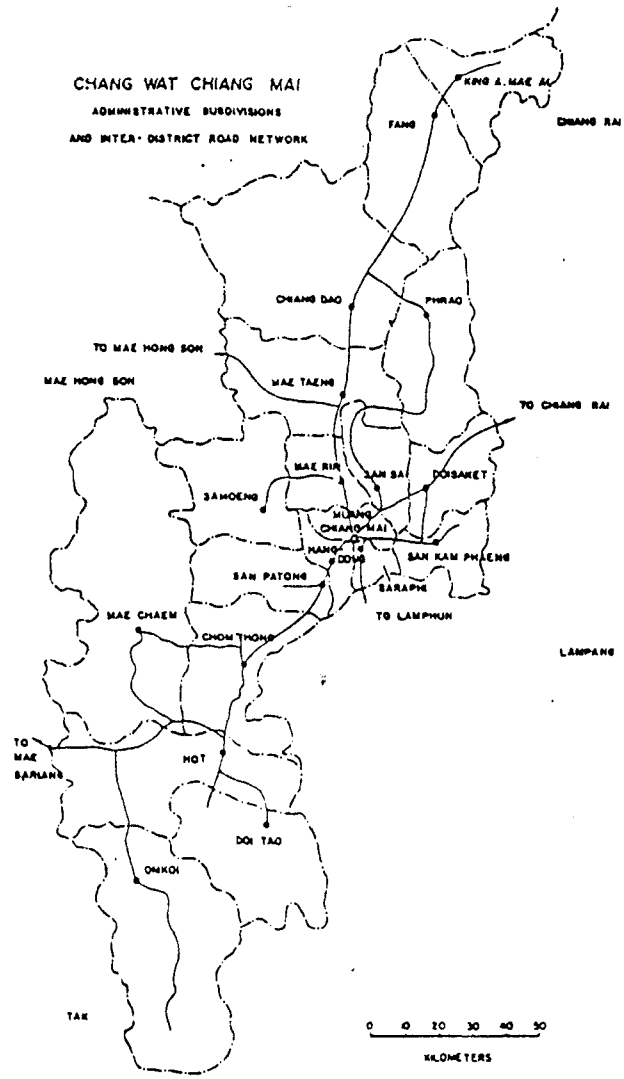

Figure 1

were those who are looking for jobs or have urgent need to borrow money). They are also able to make contacts with home, through friends who return. These workers, though staying away from home, keep close contacts with their home villages. They maintain their full membership in the village and always return to participate in various village functions such as religious festivals, weddings, funerals or house-warming ceremonies. They also keep abreast of the village activities. Contrarily, they have a minimum of interaction with the urban community of

Table 6

District of Orgin of Construction Workers From Chiang Mai Province

District	Distance[1] from City (km.)	Population[2]	Density[2] (per sq.km.)	Number of workers	Percent
Hang Dong	15	50,439	241.08	267	19.4
Mae Rim	16	54,523	151.51	232	16.6
San Sai	11	65,482	205.90	205	14.6
Muang	-	163,745	947.76	197	14.0
San Pa Tong	22	97,607	109.60	182	13.0
San Kamphaeng	13	75,247	90.25	102	7.3
Saraphi	12	60,956	474.85	84	6.0
Doi Saket	18	55,382	85.33	50	3.6
Fang	153	94,650	60.61	30	2.1
Chom Thong	58	75,477	69.56	23	1.6
Mae Taeng	40	56,850	37.39	10	0.7
Chiang Dao	72	42,215	15.29	6	0.4
Hot	109	24,243	9.34	5	0.4
Mae Ai	168	34,737	38.60	2	0.1
Doi Tao	130	22,397	56.51	1	0.1
Total	-	-	-	1,402	100.0

Sources : 1. Highway Map Northern Region, Scale 1:1,000,000, October 1977.

2. National Statistical Office 1974, Statistical Reports of Changwat : Chiang Mai.

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which they do not consider themselves members. Their interactions here are limited only to those fellow workers at the construction camps who in fact are most often from their own village.

Table 7
Type of Present Place of Residence
of the Construction Workers

	Number	Percent
Home village	1,154	61.9
Construction camp	504	27.0
Rented house in the city	82	4.4
Owned house in the city	63	3.4
Relative house in the city	40	2.1
Sub-contractor housing in the city	11	0.6
Friends and relatives house in Lamphun or near by districts of Chiang Mai	11	0.6
Total	1,865	100.0

About one-third of the workers who do not stay at the construction camps come to work by mini-bus, usually on a contract basis (Table 8). The drivers who bring the workers to the job sites are usually from the same villages. Most often, several villagers from one place work at the same construction sites so they find it convenient and economical to hire a mini-bus to transport them back to their village in the evenings. Less than one-fourth of those who use mini-bus transportation do not come in a group with contract drivers. Foremen and skilled laborers who earn better wages (especially men) usually come to work on their own motorcycles.

Some companies send trucks to pick up their workers in the morning and take them back in them the evening. Bicycles have become less popular with the availability of the mini-bus. Workers who use bicycles to commute to work comprise only 15.7 percent of all the commuters. Those who live near the construction sites walk to work and only 3 percent use the bus service. Inter-district buses are slow and are not as convenient a mode of transportation as the mini-bus which takes them right to the construction sites.

The development of a transportation network of paved roads connecting all the district seats with the city has facilitated the mobility of the rural population to work in the city. Commuting, in particular, has become a mechanism by which they can take advantage of the employment opportunities from both rural and urban places at the same time. Most village families in North Thailand are far from being self-sufficient from farm work alone and other employment opportunities are also limited in rural areas. Construction work in the city, while offering jobs to village workers, fluctuates in nature. To engage in construction work alone, one faces low pay and uncertain employment and income. The nature of farm work and construction work, thus, complement each other in the way that labor inputs can be adjusted from day to day. If, for example, intensive labor is needed for harvesting rice on the family farm, a son or daughter who works as a construction worker can, without asking permission, miss the job in the city for a day or two with no trouble about being taken back the next day. The practice of laborers missing work without permission is common among rural construction workers in the city and has been accepted, or at least is understood by employers as inevitable for their workers to participate in their village functions. Although some non-northern Thai employers interpret such behavior as laziness, comparing them unfavorably with northeasterners, most understand the strong tie of the northern Thai workers to their

communities and have accepted it. Since these workers are paid on a daily basis, their employers do not suffer a loss of wages, though their work may be slowed down somewhat. Still they can always call for more workers any time to speed up their work. Realizing this situation, the company usually hires workers from many villages in order that the whole work gang will not miss working on the same day. Landless village construction workers also stay to work in the village when opportunities arise, such as at harvesting, by helping their neighbors harvest rice. In this way they often choose to get paid in kind and have rice to feed the family without having to buy it for a long period.

Commuting to work in the city also provides a social advantage. Construction workers can maintain their roots in the home village and enjoy the advantage of its social networks while at the same time being free from its social restrictions when in the city working. Furthermore, when back in the village community these people become linkages between their village communities and urban values and ideas, and they often enjoy the reputation of "seeing more and knowing more" than their fellow villagers who do not have as much exposure to the urban environs. Commuting is thus a wise arrangement for village construction workers to take advantage of the spatial separation of opportunities for meeting their economic as well as social needs.

Demographic Characteristics

Most of the workers are between 15 and 29 years of age. They comprise 77.1 percent of all the workers. These construction workers have a minimum educational background. Most of them (72.9 percent males and 73.9 percent females) have had only primary education (grade 1-4) (Table 9). No formal education is required for the workers and even though work experiences give an advantage in securing a job, most contractors are willing to give training on the job. Males are predominant, consisting of about three-fourths

Age and Sex Structure of Construction Workers

in Chiang Mai City

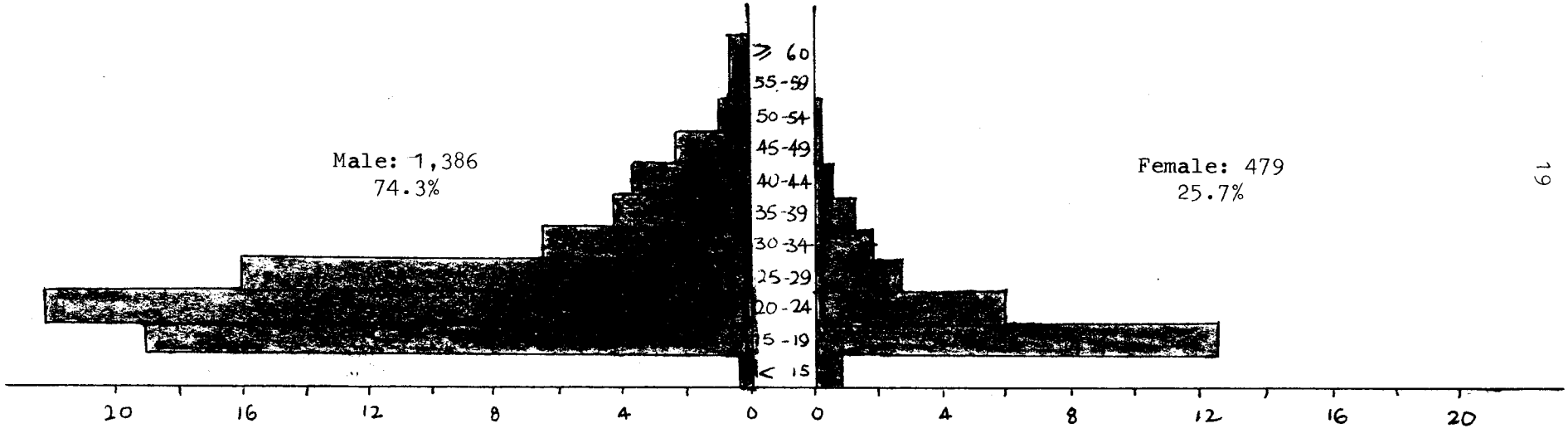

FIGURE 2

of the total work force (Table 10). In general, female workers belong to younger age groups in comparison with male workers, as it was found that the majority of them are between 15-19 years old (Figure 2). However, over 60 percent of both male and female workers are single. This reflects the fact that construction work in the city is particularly appealing to young villagers newly entering the labor force. The opportunity to work with their fellow villagers in a group and the opportunity to meet young workers from other villages has also helped to make construction work, which is often arduous, popular among both male and female villagers. After their marriage, fewer female workers return to construction than males to raise the families in which many of them have to change to an occupation that will enable them to perform the role of mother at the same time. There are thus larger percentages of married male workers than married female construction workers (Table 11).

Table 9

Educational Attainment

	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
No Education	17	1.2	7	1.5	24	1.3
Lower Primary (Grade 1 - 4)	1,010	72.9	368	76.8	1,378	73.9
Upper Primary (Grade 5 - 7)	214	15.4	88	18.4	302	16.2
Lower Secondary (Grade 8 - 10)	112	8.1	14	2.9	126	6.7
Upper Secondary (Grade 11 - 12)	15	1.1	2	0.4	17	0.9
Vocational	18	1.3	-	-	18	1.0
Total	1,386	100.0	479	100.0	1,865	1.0

Table 10

Age and Sex Structure

	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
15	6	0.3	14	0.8	20	1.1
15-19	349	18.7	231	12.4	580	31.1
20-24	406	21.8	108	5.8	514	27.6
25-29	293	15.7	50	2.7	343	18.4
30-34	119	6.4	33	1.8	152	8.2
35-39	77	4.1	22	1.2	99	5.3
40-44	67	3.6	11	0.6	78	4.2
45-49	40	2.2	4	0.2	44	2.4
50-54	17	0.9	5	0.2	22	1.1
55-59	10	0.5	1	-	11	0.5
60	2	0.5	-	-	2	0.1
Total	1,386	74.3	479	25.7	1,865	100.0

Table 11

Marital Status

	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
Single	859	62.0	309	64.5	1,168	62.2
Married	509	36.7	137	28.6	646	34.6
Widowed	6	0.4	7	1.5	13	7.0
Divorced	12	0.9	26	5.4	38	2.3
Total	1,386	100.0	479	100.0	1,865	100.0

Fertility Behavior

The analysis of the fertility behavior of the construction workers is based on data collected from 132 currently married women workers aged 15-44 years. It was found that the largest proportion of them are in the 20-24 age group. Married women who continue their construction work after their marriages do so for many years, as it appears that their numbers in each age-group does not significantly decrease until they are in their forties. (Table 12).

Working as construction laborers in the city does not have a significant impact on the age at first marriage. Workers are found to marry young, with their average age at first marriage only 17.8 years old (Table 13). Such a pattern follows the general characteristics of the rural population where many marry when they are quite young, a trend particularly true among villagers who leave school after they finish grade 4 or when they are only 11 or 12 years old. Even though these women workers marry young they often delay having children for at least one or two years.

It was found that 30.3 percent of them have no children. These people stated that they are not ready to have children and prefer to work to save some money to cover hospital expenses as well as the loss of the wife being economically productive for at least one or two years when the child is first born. After that the wife may return to work if she can find parental surrogates or can hire someone to take care of the baby. Parental surrogates, however, have become scarce in rural Chiang Mai for everyone has to work to supplement their income from farm work. Only grandmothers of the well-to-do families can afford the time to take care of their grandchildren. Older children have to be in school, and those who leave school after compulsory education have to begin to work soon. If the wife works in the village it is possible to ask their relatives and neighbors to keep an eye on the child for them for a few hours or so when they go to the fields, collect forest products, or trade in the village market, or they can look after the baby while weaving thatch or tending the village store.

Table 12

Age Structure of Currently Married
Female Construction Workers Aged 15-44

Age	Number	Percent	
15-19	19	14.4	59.8
20-24	39	29.5	
25-29	21	15.9	
30-34	28	21.2	
35-39	18	13.6	
40-44	7	5.3	
Total	132	100.0	

Table 13

Age at First Marriage

Age at Marriage	Number	Percent
14	2	1.5
15	6	4.5
16	12	9.1
17	27	20.1
18	22	16.7
19	16	12.1
20	17	12.9
21	8	6.1
22	9	6.8
23	2	1.5
24	3	2.3
25	-	-
26	3	2.3
27	2	1.5
28	-	-
29	1	0.8
30	1	0.8
31	-	-
32	1	0.8
Total	132	100.0

$\bar{x}$: 17.8

Working in the building industries in the city, however, requires definite working hours with which they have to comply. Those who have small children and have no parental surrogates now have to depend on day care centers which are now becoming common in rural areas as well, because of the demand from working village mothers. Villagers spend about 30-50 baht a month for their small children to stay at the center. Some workers, whose infants stay at the construction camp, pay 10 baht a day for the wife of other workers who do not join the husband as construction laborers to take care of the babies for them. Thus, participating in construction work is evidently not compatible with being a mother of particularly small children.

Spacing children has become another answer to the problem of incompatibility between the roles of mother and work force, in addition to delaying having the children. It was found that 69.7 percent of the married workers are practising birth control (Table 14), a very high percentage when compared with 55.6 percent of the average found among Chiang Mai women in general (Shevasunt and Hogan 1979, 85). Birth control knowledge is widespread among Chiang Mai villagers and the construction workers have the advantage of accessibility to the services in Chiang Mai. Over half of them use the services available in the city (Table 15). Pills are the most popular method among female adopters, followed by injections. Only 5.4 percent of birth control practice is carried out by the husband (Table 16).

Among non-adopters, about one-third (11 out of 29) are former adopters. Various reasons were given as to why they have stopped, such as they became weak or ill or they had reached the non-reproductive age, but only two said that they stopped because they want to have additional children. Similar reasons are given by those who have never practised birth control.

Table 14

Birth Control Practice of Currently Married Women

Construction Workers Aged 15-44

	Number	Percent
Practicing	92	69.7
Once practiced but now stop	11	8.3
Never practice	29	22.0
Total	132	100.0

Table 15

Place Received Birth Control Service

	Number	Percent
Chiang Mai City	50	54.3
Other Province	17	18.5
Home Village in Chiang Mai Province	14	15.2
District Centers in Chiang Mai Province	11	12.0
Total	92	100.0

The incompatibility between the role of mother and of construction worker not only puts a constraint on married women workers by making them decide when they can afford to be a mother, but their exposure to the urban environment has had an important influence on their values and outlook, which in turn have affected their fertility behavior. In the city, they have witnessed the security and prestige associated with governmental and professional occupations which require a lengthy education. This has influenced their having high aspirations for their children. Thirty-three percent state that they want their children to have a university education, the most popular educational goal noted, while another one-third want their children to finish secondary education (14 percent for 10th grade and 18 percent for 12th grade), even though they themselves have had only a fourth grade education. Only one-third preferred that their children make up their own minds, or want them to go only as far as the compulsory education.

These construction workers no doubt realize that the expenses of rearing a large family with their limited income, would impede supporting even one child through 10-16 years of education. Most of them say they want small families, and this conviction is reflected in their average ideal family size of only 2.35 children, (Table 17), with an average number of children ever-born being 1.6 persons (Table 18). Both figures are lower than those of Chiang Mai as a whole (2.78 for children ever-born, and 2.54 for ideal family size) (Shevasunt and Hogan 1979, 29, 32) (Table 19).

The construction workers' values towards modern consumption goods, which they have been exposed in the city, have also influenced their calculation and budgeting between the expenses of raising an additional child and the possibility of owning a television, motorcycles, electric rice cookers, gas stove and so on. It is because of such attitudes that a phrase, that was invented to encourage family planning, 'mee luk chet khon, chon pai chet pee' (having seven children, is being poor for seven years) has become the popular villagers explanation of their motives to have few children.

Table 16

Method of Birth Control Practice

	Number	Percent	
Wife			
- Pill	51	55.4	94.6
- Injection	19	20.7	
- Sterilization	9	9.8	
- IUD	8	8.9	
Husband			
- Sterillization	4	4.3	5.4
- Condom	1	1.1	
Total	92	100.0	

Table 17

Ideal Number of Children

Number of Children	Number	Percent
0	-	-
1	9	6.8
2	82	62.1
3	23	17.4
4	14	10.6
5	2	1.5
6	1	0.8
No answer	1	0.8
Total	132	100.0

$\bar{x}$: 2.35

Table 18

Number of Children Even Born by Age of Mother

Chiang Mai Construction Workers, 1981

	0	1	2	3	4	5	6	Total	$\bar{X}$
15 - 19	14	4	1	-	-.	-	-	19	0.3
20 - 24	15	17	7	-	-	-	-	39	0.8
25 - 29	3	9	6	3	-	-	-	21	1.4
30 - 34	4	6	4	7	6	-	1	28	2.3
35 - 39	1	2	6	3	3	2	1	18	2,8
40 - 44	1	-	1	4	1	-	-	7	2.6
15 - 44	38	37	26	17	7	5	2	132	1.6

Table 19

Number of Children Ever-Born By Age of Mother

Chiang Mai 1976-1977

Age of Mother	Ever-married women	Currenty married women
15 - 19	0.52	0.53
20 - 24	1.16	1.12
25 - 29	1.80	1.86
30 - 34	2.97	3.21
35 - 39	3.93	3.96
40 - 44	4.32	4.62
15 - 44	2.68	2.78

Source : Shevasunt and Hogan 1979, 29

Conclusion

Research findings have shown that while rural construction workers in Chiang Mai city continue to marry young, they adopt family planning to delay having children and to space themselves to participate in the labor force. Commuting to work outside the village of residence represents the skillful arrangement of the rural population to cope with the spatial separation of opportunities in order to meet social and economic needs. Their adoption of birth control practice and the small family size reflects both the incompatibility between the role of mother and urban worker, as well as their urbanized values. With parental surrogates declining, the incompatibility is greater among newly married women who are still establishing their families, rather than among those who have been married for some time, to have sufficient means to place their small children in the village day-care centers.

However, the relationship between commuting and fertility is by no means simple. This is especially true in Chiang Mai where fertility has dramatically declined, which has resulted in a generally low fertility rate in most of the rural areas. A further complication, notwithstanding, is the fact that rural commuters to the city have acted as the linkages between the urban and rural sectors, and they also have been the most effective innovators in spreading urban values and ideas to their non-commuters neighbor in the village. Thus any comparison of fertility behavior between commuters and non-commuters from the same village community may confront the fact that non-commuters have already been influenced by their commuter neighbors. Careful examination should be made of this aspect before generalizations on fertility differentials can be made.

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APPENDIX 1

Primary Occupation

Of Currently Married Female Construction Workers Aged 15-44

Primary Occupation	Number	Percent
Construction Wage Work	70	53.0
Agriculture	40	30.3
Trade	9	6.8
Farm Wage Work	7	5.3
Others	6	4.6
Total	132	100.0

APPENDIX 2

Sources of Information On Family Planning

Of Currently Married Female Construction workers aged 15-44

Sources of information	Number	Percent
Fellow villagers	51	38.6
Doctor, nurses, other health personels	44	33.1
Mass Media	21	15.9
Fellow construction workers	4	3.0
Own observation	4	3.0
Fellow villagers in the city	2	1.5
Training	1	0.7
Don't know	3	2.3
No answer	2	1.5
Total	132	100.0

APPENDIX 3

Number of Living Children by Age of Mother

Of Currently Married Female Construction Workers Aged 15-44

Age	0	1	2	3	4	5	6	Total	$\bar{X}$
15 - 19	15	3	1	-	-	-	-	19	0.3
20 - 24	16	16	7	-	-	-	-	39	0.8
25 - 29	3	9	6	3	-	-	-	21	1.4
30 - 34	4	6	4	7	6	-	1	28	2.3
35 - 39	1	2	6	3	3	2	1	18	2.8
40 - 44	1	-	1	4	1	-	-	7	2.6
15 - 44	40	36	25	17	10	2	2	132	1.5

APPENDIX 4

Comparison of Actual and Ideal

Number of Children

Of Currently Married Female Construction Workers Aged 15-44

	Number	Percent
Same number	52	39.4
Ideal larger than actual	38	28.8
Ideal smaller than actual	2	1.5
Do not have children	40	30.3
Total	132	100.0

APPENDIX 5

Practicing Birth Control to Space Children

Of Currently Married Female Construction Workers Aged 15-44

	Number	Percent
Yes	39	29.5
No	64	48.5
Never Practice Birth Control	29	22.0
Total	132	100.0

APPENDIX 6

Children Born Last Year

Of Currently Married Female Construction Workers Aged 15-44

	Number	Percent
None	130	98.5
One	2	1.5
Total	132	100.0

APPENDIX 7

Pregnancy at Time of Survey

Of Currently Married Female Construction Workers Aged 15-44

	Number	Percent
No	123	93.2
Yes	8	6.1
Not Sure	1	0.7
Total	132	100.0

APPENDIX 8

Number of Still Births

Of Currently Married Female Construction Workers Aged 15-44

	Number	Percent
0	83	69.9
2	1	0.7
Do not have any children	40	30.3
Total	132	100.0

$\overline{X}$ = 0.1

APPENDIX 9

Number of Miscarriages

Of Currently Married Female Construction Workers Aged 15-44

	Number	Percent
0	79	59.8
1	9	6.8
2	4	3.0
Do not have any children	40	30.3
Total	132	100.0

$\overline{X}$ = 0.1

SEAPRAP

THE SOUTHEAST ASIA POPULATION RESEARCH AWARDS PROGRAM

PROGRAM OBJECTIVES

* To strengthen the research capabilities of young Southeast Asian social scientists, and to provide them with technical support and guidance if required.

* To increase the quantity and quality of social science research on population problems in Southeast Asia.

* To facilitate the flow of information about population research developed in the program as well as its implications for policy and planning among researchers in the region, and between researchers, government planners and policy makers.

ILLUSTRATIVE RESEARCH AREAS

The range of the research areas include a wide variety of research problems relating to population, but excludes reproductive biology. The following are some examples of research areas that could fall within the general focus of the Program:

* Factors contributing to or related to fertility regulation and family planning programs; familial, psychological, social, political and economic effects of family planning and contraception.

* Antecedents, processes, and consequences (demographic, cultural, social, psychological, political, economic) of population structure, distribution, growth and change.

* Family structure, sexual behaviour and the relationship between child-bearing patterns and child development.

* Inter-relations between population variables and the process of social and economic development (housing, education, health, quality of the environment, etc).

* Population policy, including the interaction of population variables and economic policies, policy implications of population distribution and movement with reference to both urban and rural settings, and the interaction of population variables and law.

* Evaluation of on-going population education programs and/or development of knowledge-based population education program.

* Incentive schemes — infrastructures, opportunities; overall economic and social development programs.

SELECTION CRITERIA

Selection will be made by a Program Committee of distinguished Southeast Asian scholars in the social sciences and population. The following factors will be considered in evaluating research proposals:

1. relevance of the proposed research to current issues of population in the particular countries of Southeast Asia;
2. its potential contribution to policy formation, program implementation, and problem solving;
3. adequacy of research design, including problem definition, method of procedure, proposed mode of analysis, and knowledge of literature;
4. feasibility of the project, including time requirement; budget; and availability, accessibility, and reliability of data;
5. Applicant's potential for further development.

DURATION AND AMOUNT OF AWARDS

Research awards will be made for a period of up to one year. In exceptional cases, requests for limited extension may be considered. The amount of an award will depend on location, type and size of the project, but the maximum should not exceed US$7,500.

QUALIFICATIONS OF APPLICANTS

The Program is open to nationals of the following countries: Burma, Indonesia, Kampuchea, Laos, Malaysia, Philippines, Singapore, Thailand and Vietnam. Particular emphasis will be placed on attracting young social scientists in provincial areas.

Applications are invited from the following:

* Graduate students in thesis programs

* Faculty members

* Staff members in appropriate governmental and other organizations.

Full-time commitment is preferable but applicants must at least be able to devote a substantial part of their time to the research project. Advisers may be provided, depending on the needs of applicants.